

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference A25584/WO	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 99/ 00822	International filing date (day/month/year) 17/03/1999	(Earliest) Priority Date (day/month/year) 27/03/1998
Applicant BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.
☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☒ because this figure better characterizes the invention.

3

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

GB 99/00822

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 H04M3/50 H04M3/42 H04M3/44

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 H04M H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 448 625 A (LEDERMAN MATTHEW) 5 September 1995 see column 2, line 28 - column 4, line 18 see column 5, line 46 - column 6, line 19 ---	1-15
A	US 4 850 007 A (MARINO PATRICK J ET AL) 18 July 1989 see the whole document ---	1-15
A	US 5 272 748 A (DAVIS GEORGE) 21 December 1993 see abstract see column 1, line 49 - column 3, line 20 ---	1-15
A	DE 41 41 027 A (SCHMIDT CHRISTIAN ; SCHMIDT SIEGFRIED DIPL ING FH (DE)) 17 June 1993 see the whole document -----	1-15

☐

Further documents are listed in the continuation of box C.

☒

Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

8 June 1999

Date of mailing of the international search report

16/06/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
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Fax: (+31-70) 340-3016

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Megalou, M

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

GB 99/00822

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5448625 A	05-09-1995	CA 2121102 A	14-10-1994
US 4850007 A	18-07-1989	AU 607233 B	28-02-1991
		AU 1838588 A	05-01-1989
		CA 1286759 A	23-07-1991
		GB 2206265 A, B	29-12-1988
		JP 1017553 A	20-01-1989
		JP 1764247 C	28-05-1993
		JP 4058221 B	16-09-1992
US 5272748 A	21-12-1993	NONE	
DE 4141027 A	17-06-1993	NONE	

REC'D 29 FEB 2000

WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference A25584/WO	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) FOR FURTHER ACTION	
International application No. PCT/GB99/00822	International filing date (day/month/year) 17/03/1999	Priority date (day/month/year) 27/03/1998
International Patent Classification (IPC) or national classification and IPC H04M3/50		
Applicant BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 4 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 06/09/1999	Date of completion of this report 22.02.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Radoglou, A Telephone No. +49 89 2399 8984 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/00822

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

Description, pages:

1-7 as originally filed

Claims, No.:

1-15 as originally filed

Drawings, sheets:

1/4-4/4 as received on 03/05/1999

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB99/00822

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1-15
	No: Claims
Inventive step (IS)	Yes: Claims 1-15
	No: Claims
Industrial applicability (IA)	Yes: Claims 1-15
	No: Claims

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB99/00822

To section V:

The invention according to claim 1 relates to a method of operating a telecommunications network wherein the network can be pre-programmed, from a second party repote from a subscriber terminal, to respond to short dialling codes from the subscriber terminal. The subscriber is communicated data about the allocation of short dialling codes and a call is subsequently initiated from the subscriber terminal using one of the short dialling codes.

None of the available prior art discloses or renders obvious the subject-matter claimed. The document US-A-5 272 748, cited in the search report, mentions the use of shot dialling code lists but not the possibility of pre-programming the system with short dialling codes from a second party. Hence the method according to claim 1 meets the requirements of Article 33(2)-(4) PCT.

Dependent claims 2 to 13 relating to preferred embodiments of the invention and claims 14 and 15 which correspond to claims 1 and 2 in terms of system features likewise meet the requirements of Article 33(2)-(4) PCT.

To section VII:

Reference signs in parentheses should have been inserted in the claims to increase their intelligibility, Rule 6.2(b) PCT.

To meet the requirements of Rule 5.1(a)(ii) PCT, the document mentioned above should have been identified in the description and the relevant background art disclosed therein should have been briefly discussed.

1/4

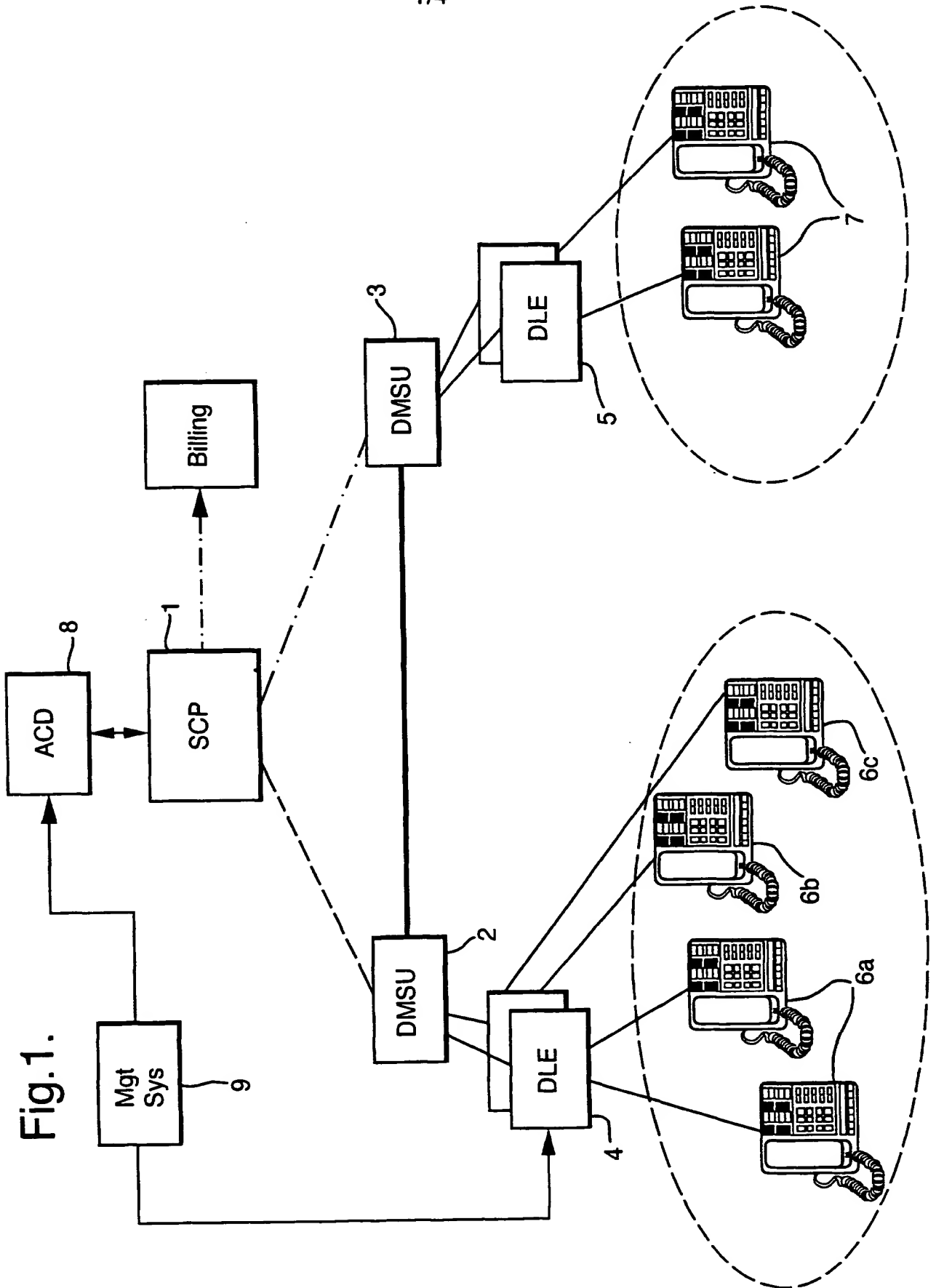
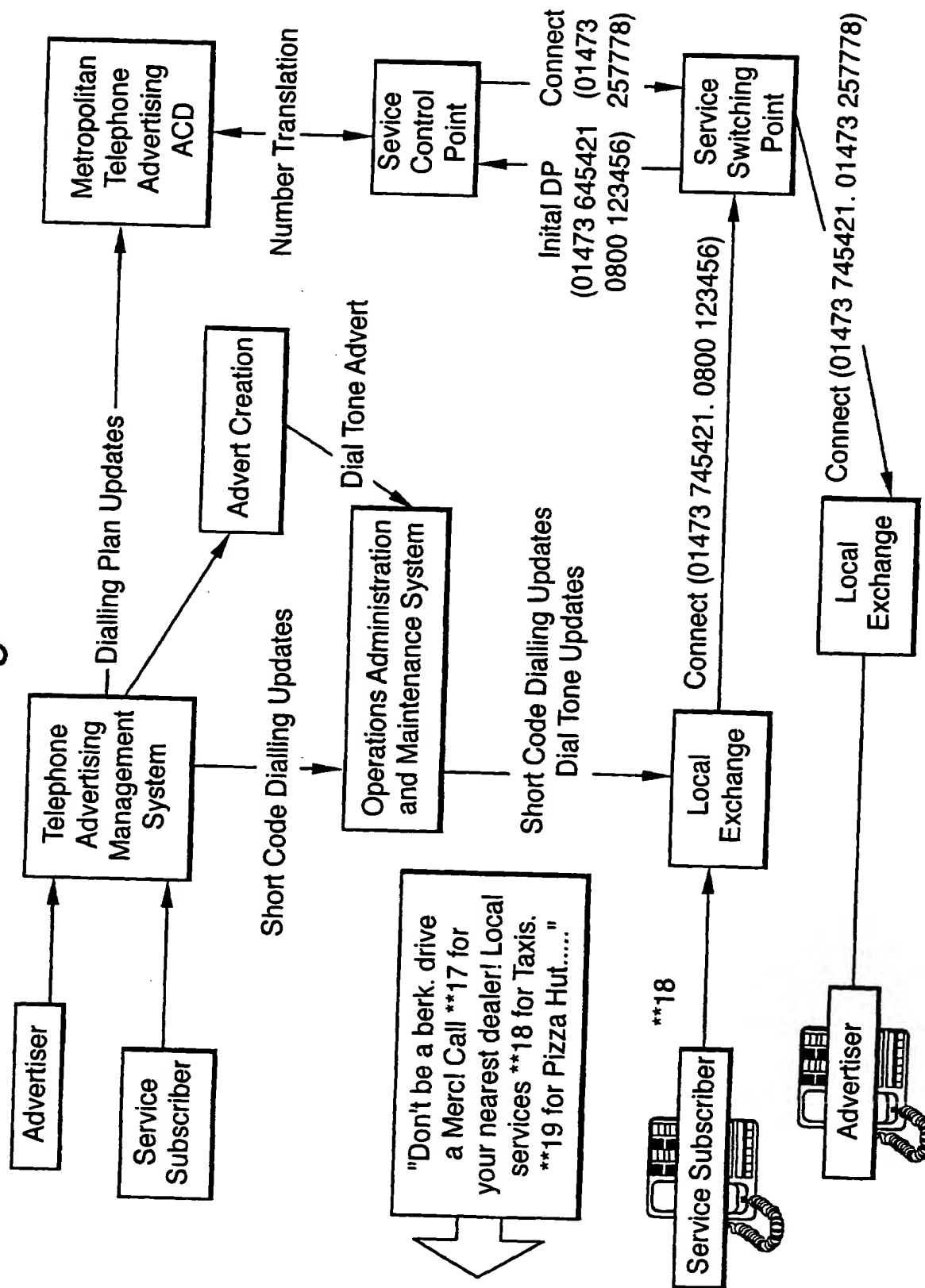


Fig.3.



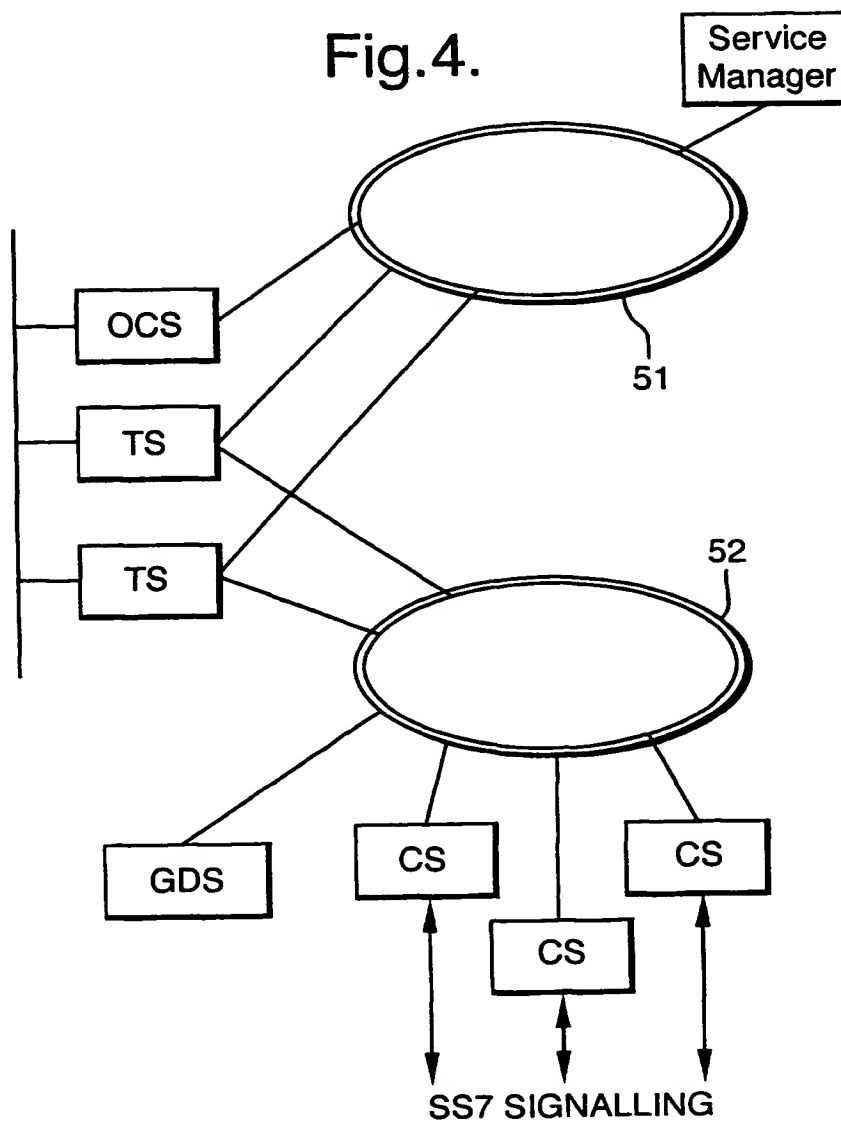
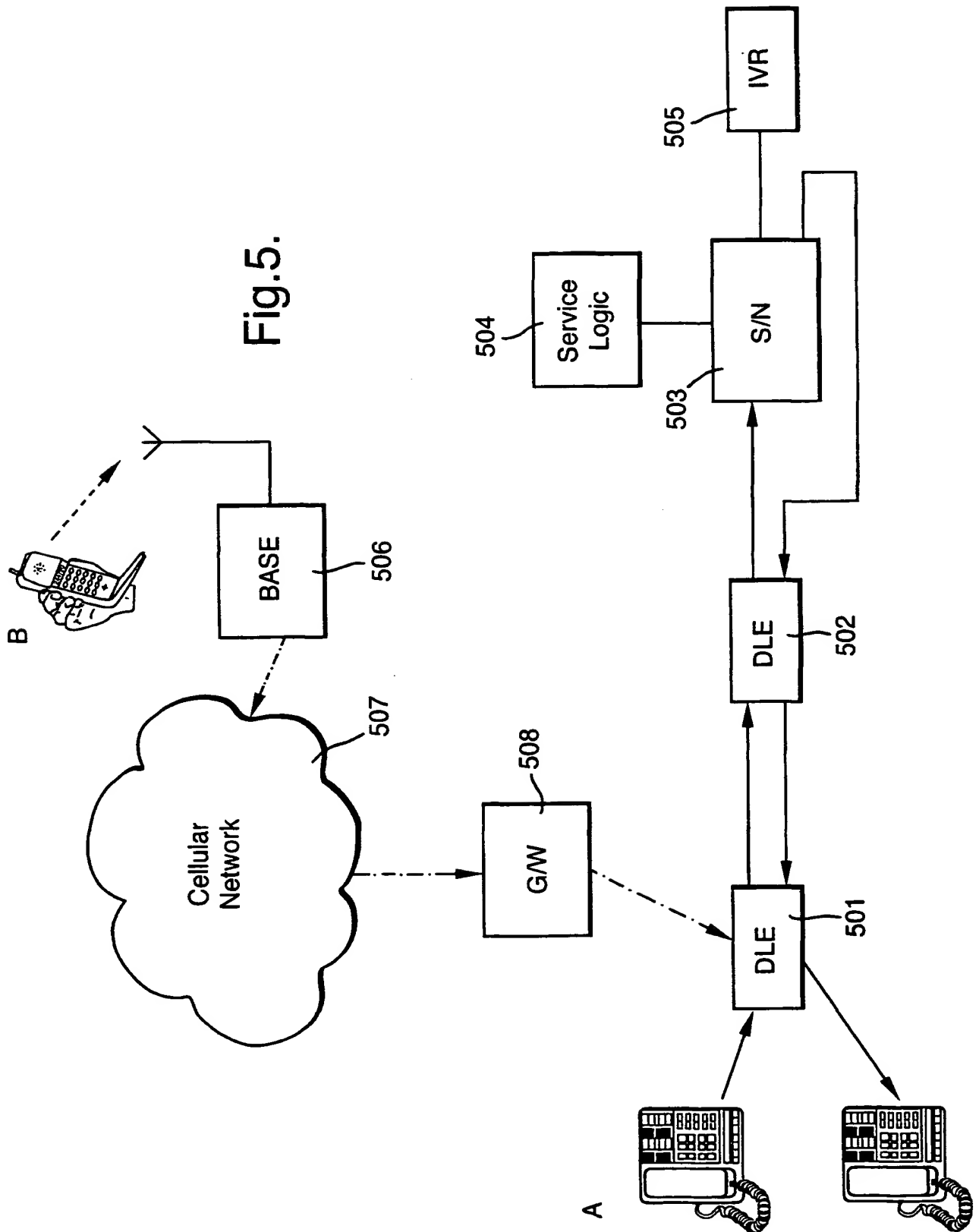


Fig.5.



PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

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6. The figure of the drawings to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☒ because this figure better characterizes the invention.

3

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/00822

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IPC 6 H04M3/50 H04M3/42 H04M3/44

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 H04M H04Q

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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A	US 4 850 007 A (MARINO PATRICK J ET AL) 18 July 1989 see the whole document ---	1-15
A	US 5 272 748 A (DAVIS GEORGE) 21 December 1993 see abstract see column 1, line 49 - column 3, line 20 ---	1-15
A	DE 41 41 027 A (SCHMIDT CHRISTIAN ;SCHMIDT SIEGFRIED DIPL ING FH (DE)) 17 June 1993 see the whole document -----	1-15

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

8 June 1999

Date of mailing of the international search report

16/06/1999

Name and mailing address of the ISA

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Fax: (+31-70) 340-3016

Authorized officer

Megalou, M

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 99/00822

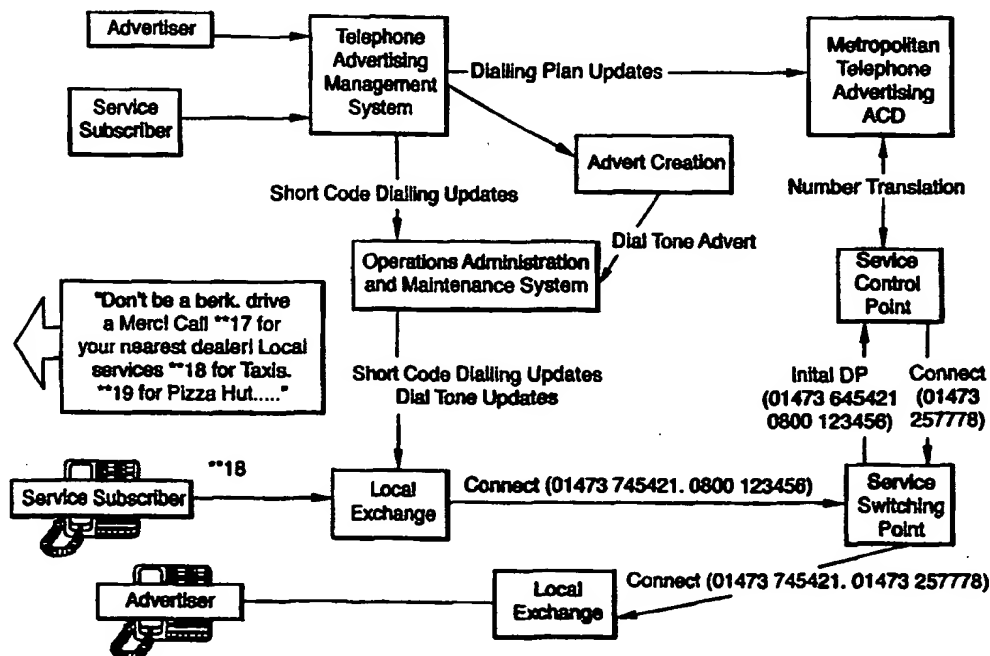
Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5448625 A	05-09-1995	CA 2121102 A	14-10-1994
US 4850007 A	18-07-1989	AU 607233 B	28-02-1991
		AU 1838588 A	05-01-1989
		CA 1286759 A	23-07-1991
		GB 2206265 A,B	29-12-1988
		JP 1017553 A	20-01-1989
		JP 1764247 C	28-05-1993
		JP 4058221 B	16-09-1992
US 5272748 A	21-12-1993	NONE	
DE 4141027 A	17-06-1993	NONE	



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H04M 3/50, 3/42, 3/44		A1	(11) International Publication Number: WO 99/51014
			(43) International Publication Date: 7 October 1999 (07.10.99)
(21) International Application Number: PCT/GB99/00822		(81) Designated States: JP, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(22) International Filing Date: 17 March 1999 (17.03.99)			
(30) Priority Data: 98302396.1 27 March 1998 (27.03.98) EP		Published With international search report.	
(71) Applicant (for all designated States except US): BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY [GB/GB]; 81 Newgate Street, London EC1A 7AJ (GB).			
(72) Inventors; and			
(75) Inventors/Applicants (for US only): LAUNDERS, Darren, Michael [GB/GB]; 21 Almondhayes, Ipswich, Suffolk IP2 9SH (GB). BEDDUS, Simon, Alexander [GB/GB]; 35 Grove Lane, Ipswich, Suffolk IP4 1NX (GB).			
(74) Agent: WELLS, David; BT Group Legal Services, Intellectual Property Dept., Holborn Centre, 8th floor, 120 Holborn, London EC1N 2TE (GB).			

(54) Title: TELECOMMUNICATIONS NETWORK



(57) Abstract

In a telecommunications network, short dialling codes for a subscriber terminal are programmed by another party, and the allocation of codes is communicated to the user. An audio announcement played as part of the dial tone may be used to communicate the allocation of codes.

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Telecommunications Network

BACKGROUND TO THE INVENTION

The present invention relates to a telecommunications network, and in particular to a network in which subscribers can use short dialling codes.

It is common practice in networks using modern digital exchanges to provide a facility for customers to use short dialling codes to access frequently dialled numbers. The customer programs the allocation of short dialling codes by dialling out to the local exchange an appropriate sequence of digits. The local exchange records the allocation of codes, and on subsequent calls causes a short code to be translated into the corresponding allocated telephone number.

SUMMARY OF THE INVENTION

According to a first aspect of the present invention, there is provided a method of operating a telecommunications network including:

(a) in response to instructions from a second party remote from a subscriber terminal, pre-programming the network to respond to one or more short dialling codes from the subscriber terminal,

(b) communicating to the subscriber data identifying the allocation of short dialling codes pre-programmed in step (a); and

(c) subsequently initiating a call from the said subscriber terminal by dialling one of the said short codes.

Although, as noted above, the facility to programme short dialling codes has been widely available, it has not been widely used. The present invention significantly increases the ease of use of the short code facility by allowing the allocation of short codes to pre-programmed by another party, such as the network operator or a service provider connected to the network. This is done moreover without requiring any modification to the standard call control processes. Common call control processes, using the full numbering range of the network, can therefore be used both by subscribers using this service feature, and by other subscribers.

Preferably step (b) includes communicating the said data to the subscriber terminal in an off-hook signal.

The term "off-hook signal" is used to denote a signal played automatically to the user when the terminal is placed in the off-hook state, for example by lifting a telephone handset in order to dial out. This aspect of the invention uses this off-

hook signal to indicate to the subscriber the allocation of short codes. This provides a further significant advance in the ease of use of the service by removing the need for the subscriber to remember or record the allocation of codes. At the same time it facilitates the use of centrally-programmed codes, since changes or
5 updates can be readily notified to the subscriber, and serves to prompt the subscriber to use the service. Alternatively or in addition other means may be used to communicate the data identifying the allocation of short codes, for example via a separate data communications network such as the Internet.

Preferably the data communicated to the subscriber may include a paid-for
10 advertisement for goods or services accessed by a telephone number corresponding to one of the said short dialling codes. This preferred feature allows the service to generate extra revenue for the network operator. In return the network may generate a network billing record at a reduced billing rate (reduced, that is, compared to the rate for subscribers not receiving the advertisements) for
15 calls made from the said subscriber terminal.

Preferably the step of pre-programming the network includes programming a number translation platform remote from the subscriber terminal with a plurality of different short dialling code allocations for a plurality of different subscriber terminals. Preferably the method includes transmitting from a management
20 platform to the number translation platform instructions for determining the allocation of short dialling codes, and transmitting from the management platform to a local exchange the said data identifying the allocation of short dialling codes for a respective subscriber terminal.

These preferred features serve to facilitate control and management of the
25 pre-programmed facility in such a way that it can be provisioned for large numbers of subscribers whilst minimising the network overheads associated with the service.

According to a second aspect of the present invention, there is provided method of operating a telecommunications network, including communicating to a
30 user of a subscriber terminal an off-hook signal which identifies an allocation of short dialling codes for the subscriber terminal.

The invention also encompasses a telecommunications network arranged to operate using a method in accordance with one or more of the preceding aspects.

DESCRIPTION OF THE DRAWINGS

Systems embodying the present invention will now be described in further detail, with reference to the accompanying drawings in which:

5 Figure 1 is a schematic of a network suitable for use with the present invention;

 Figure 2 is an example of a timing diagram for an off-hook signal;

 Figure 3 is a schematic showing the signal flows when the invention is implemented on the network of Figure 1;

10 Figure 4 shows the architecture of a service control point;

 Figure 5 shows a second example of a network embodying the invention.

DESCRIPTION OF EXAMPLES

 Figure 1 shows a telecommunications network employing an IN (Intelligent Network) architecture. A service control point (SCP) 1 is connected via a common
15 channel signalling network to digital main switch units (DMSU's) 2 and to digital local exchanges (DLE's) 3. A suitable architecture for the service control point is shown in Figure 4. The digital main switch units and digital local exchanges may be commercially available systems such as Ericsson's AXE10 or GPT's System X exchanges. These exchanges include a short code dialling facility.

20 A number of subscriber terminals, for example telephones, are connected to the local exchanges. A first group of subscriber terminals 6 are located in one geographical region, for example within one metropolitan area, and a second group of terminals 7 are located in another region. Although for ease of illustration only a few terminals are shown, in practice each group may include some thousands of
25 subscriber terminals. Within the first group of subscriber terminals, some terminals, referenced 6a, fall in a first subscriber category (for example, domestic subscribers) and have the pre-programmed short dialling service provisioned. Other terminals, referenced 6b, fall into a different subscriber category (for example, payphones in public houses) and have the pre-programmed short dialling service
30 provisioned. A third group of terminals, referenced 6c do not have the short dialling service provisioned.

 The pre-programmed short code dialling service is implemented using an automatic call distribution platform (ACD) 8. The ACD platform 8 is connected to the service control point 1, and to a management platform 9. The ACD platform

carries out number translation for the short codes using a dialling plan. The ACD platform carries out number translation of the type conventionally used, for example, for free-phone (0800) numbers. This approach to implementing the invention is preferred since it facilitates access to the relevant service features by parties other than the network operator. Alternatively, it is technically possible for the local exchanges to be programmed directly with the final destination numbers corresponding to the short dial codes, in which case the use of the ACD platform is dispensed with.

Billing events are notified to a billing platform 10 from the service control point 1. The billing events distinguish between, for example, calls from terminals in group 6a, and calls from terminals in group 6c, and cause a lower billing rate to be applied to the former.

In operation, calling plans for those customers for whom the short code dialling service is provisioned are stored in the ACD platform 8. When one of these customers picks up their telephone handset they hear first a short period of the standard dial tone. This is followed by announcements played in-band to the customer from their local exchange. These announcements include identification of the relevant short codes together with advertisements for goods or services associated with one or more of the short codes. Figure 2 shows examples of the service timings. In this example, the standard dial tone is followed by a single advertising slot which would be broadcast in a pre-determined and cyclical nature along with many other advertisements of identical period – but only one per slot. After the advertisement slot, all shortcodes would be announced along with corresponding reference to their respective services. The first short code should hold the number of the advertiser from the advertisement slot. The remaining short codes are numbers associated with services, both local and national. Some of these remaining short codes should be fixed such they are not only locally defined, but provide a national standardised reference to specific services within any locality (e.g. for Taxis). Therefore, whenever any customer travelled around the country, a local service could be called immediately without prior research by simply dialling the nationally standardised short code associated with such a service.

Finally, the advertisement followed by short code reference is repeated cyclically whilst the handset is raised.

Figure 3 shows in further detail an implementation of the service outlined above. In this implementation, the ACD platform is termed the metropolitan telephone advertising ACD, and the management system is termed the telephone advertising management system (TAMS). Both advertisers and service subscribers
5 interface via customer service agent to the Telephone Advertising Management Systems (TAMS). The TAMS is operated by the telephony advertising (TA) service provider.

The TAMS system operates on a metropolitan basis, that is to say it provides services tailored to a particular metropolitan region. The system performs
10 the following functions: creates short code dialling updates for all metropolitan subscribers in accordance with the advertisers' wishes; creates dialling plan updates for the metropolitan Automatic Call Distribution (ACD) platform; manages the recording and the deployment to all local exchanges of the dial tone advertisement. The short code updates are sent to the operations, Administration
15 and Maintenance System within the network operator's domain. The short codes are then fed into the correct user accounts on the local switches. The relevant user accounts are determined by the TAMS system. For example, the system may store a list of subscribers within group 6a and another list of subscribers within group 6b. The relevant local exchanges are instructed to play one advertisement
20 and group of short code identifications to subscribers in the first group, and a second advertisement and group of short code identifications to the subscribers in the second group.

The Metropolitan Telephone Advertising ACD (MTAA) platform runs a set of Intelligent Network applications that provide the necessary number translation
25 of the short code dialling 0800 numbers into local and national services. The MTAA applications are defined by the telephone advertising service provider, but run on the network operator's Service Control Point.

In the example illustrated in Figure 4, when the user picks up the telephone, they hear 1 second of dial tone followed by a 10 second advertisement,
30 followed by a list of local or national services followed by the appropriate short code to press to access that service. In this case the dial tone offers, e.g., the option of pressing **18 for a Taxi. The user then dials **18. The short code dialling feature at the local exchange looks up the telephone number and dials the corresponding number, which in this case is a freephone number, 0800 123456.

Different 0800 numbers may be generated depending on the short code dialled by the user. This number is passed to a DMSU which functions as a Service Switching Point (SSP). The SSP creates an initialDP message (INAP) giving the calling and the called freephone number. These are translated by the MTAA application into a physical number which is the advertiser's local number. The SSP is then instructed by the Connect message to route the call to that number, which in this example is 01473 257778. Although in this case the number is on the same local exchange as the user, this is not necessarily so.

Figure 4 shows a possible architecture for an SCP, termed here the Network Intelligence Platform (NIP). A service management server is connected via an FDDI optical fibre LAN 51 to an overload control server (OCS) and to transaction servers (TS). The transaction servers implement advanced service control functions. The OCS and transaction servers are connected via a second FDDI LAN 52 to communications servers (TS) which are connected to the SS7 (ITU Signalling System no. 7) signalling network.

Although in this example, the invention is implemented using a fixed wire network using an IN architecture, it will be understood that a wide variety of different architectures may be used in implementing the invention. For example, the subscribers may use mobile cellular terminals communicating with local base stations.

As a further alternative, the management and number translation services may be carried out by computing platforms e.g. a service node located at the edge of the network, instead of using SCP's and associated peripherals as in the example above. In this case, a user from any network could call an edge of network number, either via an 0800 number followed by number translation or directly. Once through to the service node an advertisement is played to the user which contains the same content as the dial tone in the example above. After the advertisement, DTMF (dual tone multi-frequency) or speech signals can be sent by the calling user to select the desired advertiser.

Figure 5 shows the structure of a network operating using a service node, as described above. A user at location A, for example, dials the number of the service provider, and is connected via intermediate local exchanges 501,502 to the service provider node 503. The calling line identity (CLI) of location A is passed to the node with the incoming call. The node 503 then answers the call. Service

logic 504 at the node uses the CLI to address a look-up table which maps CLI's to geographical locations and subscriber categories. The node selects and plays to the caller an announcement corresponding to the callers location and category. The announcement offers a menu of short dialling codes. These may then be

5 dialled by the user and transmitted to the node as DTMF tones, or may be spoken by the user. Speech is recognised and translated at the service node by an IVR (interactive voice recognition) platform 505. In response to the selection by the user, for example of short code **18, the service node makes a call out to the corresponding number - 01473 257778 - and the call from location A is connected

10 through to that number. The call may be made by tromboning the call the service node, or take back and transfer may be effected by the node releasing the call from A, dialling a network control platform and communicating the corresponding number, and the network switch, which has held the incoming leg of the call from A, establishing a leg from the switch to the corresponding number. This take back

15 and transfer method is described and claimed in the present applicant's co-pending British and European patent applications filed 20th March 1998 Applicant's reference A25540, title "Communications Network", the contents of which are incorporated herein by reference.

The example of Figure 5 also illustrates the use of a mobile terminal. The

20 user at location B dials the service provider number of node 53. The call is passed via the local base station 506, mobile cellular network 507 and mobile/PSTN gateway 508. It is then routed on to the service provider node 503. In this case, cell location data is passed together with the CLI, and the service logic at the node 503 uses both the cell location data and the CLI in addressing a look-up table to

25 determine the appropriate announcements to be played to the caller. In other respects, the call is handled as described above for the fixed line caller.

CLAIMS

5

1. A method of operating a telecommunications network including:

(a) in response to instructions from a second party remote from a subscriber terminal, pre-programming the network to respond to one or more short
10 dialling codes from the subscriber terminal,

(b) communicating to the subscriber data identifying the allocation of short dialling codes pre-programmed in step (a); and

(c) subsequently initiating a call from the said subscriber terminal by dialling one of the said short codes.

15

2. A method according to claim 1, in which step (b) includes communicating the said data to the subscriber terminal in an off-hook signal.

3. A method according to claim 1 or 2, in which the said data is communicated to
20 the subscriber terminal as an in-band audio announcement.

4. A method according to claim 2 or 3, in which the data includes a paid-for advertisement for goods or services accessed by a telephone number corresponding to one of the said short dialling codes.

25

5. A method according to claim 4, further comprising generating a network billing record at a reduced billing rate for calls made from the said subscriber terminal.

6. A method according to any one of the preceding claims, in which the step of
30 pre-programming the network includes programming a number translation platform remote from the subscriber terminal with a plurality of different short dialling code allocations for a plurality of different subscriber terminals.

7. A method according to claim 6, including transmitting from a management platform to the number translation platform instructions for determining the allocation of short dialling codes, and transmitting from the management platform to a local exchange the said data identifying the allocation of short dialling codes
5 for a respective subscriber terminal.

8. A method according to any one of the preceding claims including pre-programming a common group of short dialling codes for a plurality of subscriber terminals in a common geographical region.

10

9. A method according to any one of the preceding claims including pre-programming different short dialling code allocations for different respective groups of subscribers in different subscriber categories.

15 10. A method according to claim 1, in which the step of pre-programming the network includes storing data determining the allocation of short codes at a service node at located at the edge of the network.

11. A method according to claim 10, in which the user first initiates a call to the
20 service node, and the service node answers the said call and communicates to the user the said data identifying the allocation of short codes.

12. A method of operating a telecommunications network, including communicating to a user of a subscriber terminal an off-hook signal which
25 identifies an allocation of short dialling codes for the subscriber terminal.

13. A method according to claim 9, in which the off-hook signal comprises an in-band audio announcement.

30 14. A telecommunications network including:

(a) means responsive to instructions from a second party remote from a subscriber terminal for pre-programming the network to respond to one or more short dialling codes from the subscriber terminal,

(b) means for communicating to the subscriber data identifying the allocation of short dialling codes pre-programmed by the said means responsive to instructions from a second party; and

(c) means responsive to a short code subsequently selected by the
5 subscriber for connecting the said subscriber to a destination number determined by the said allocation of short dialling codes.

15. A network according to claim 14, in which the said means for communicating are arranged to generate an off-hook signal containing the said data.

1/4

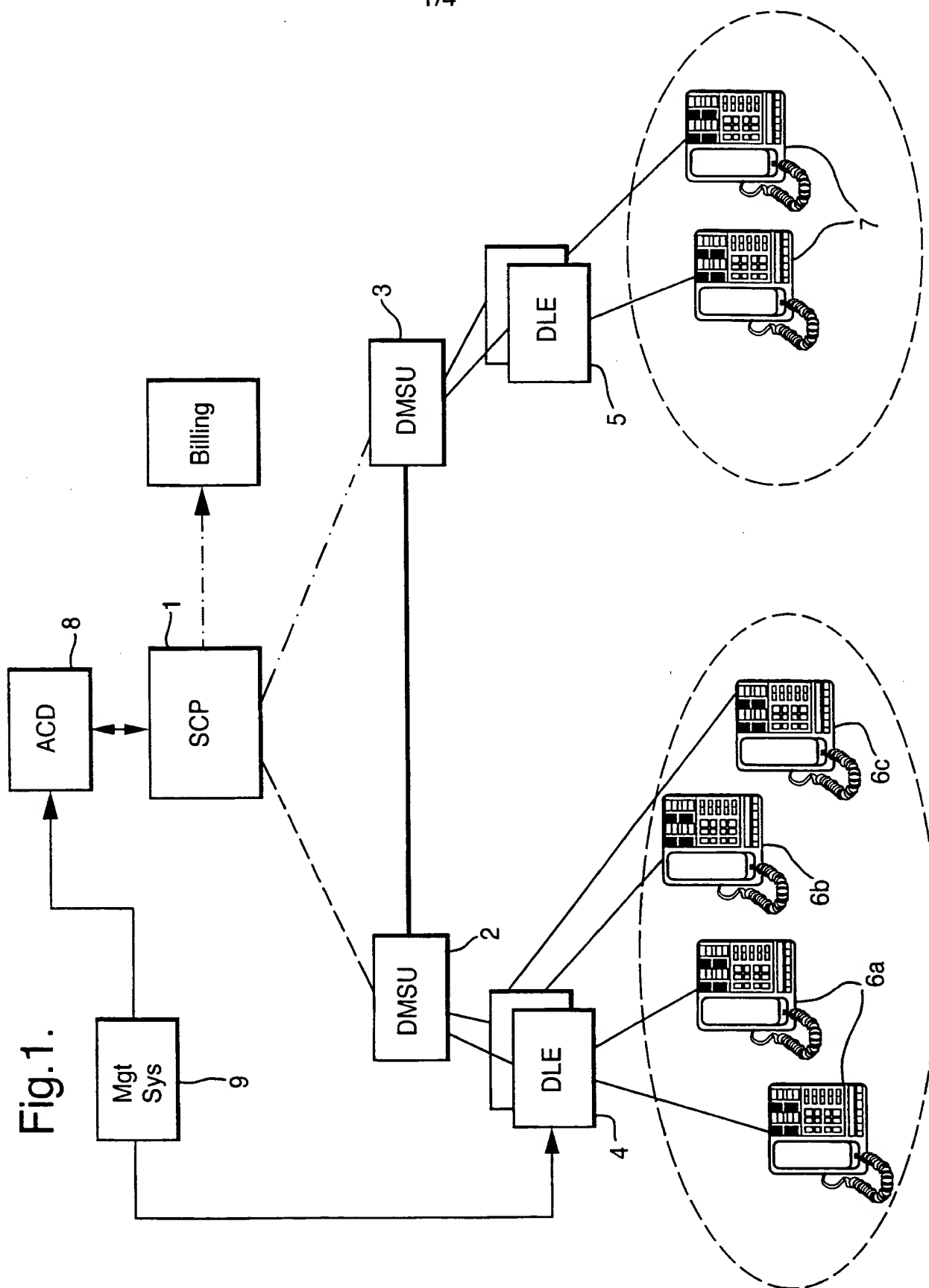
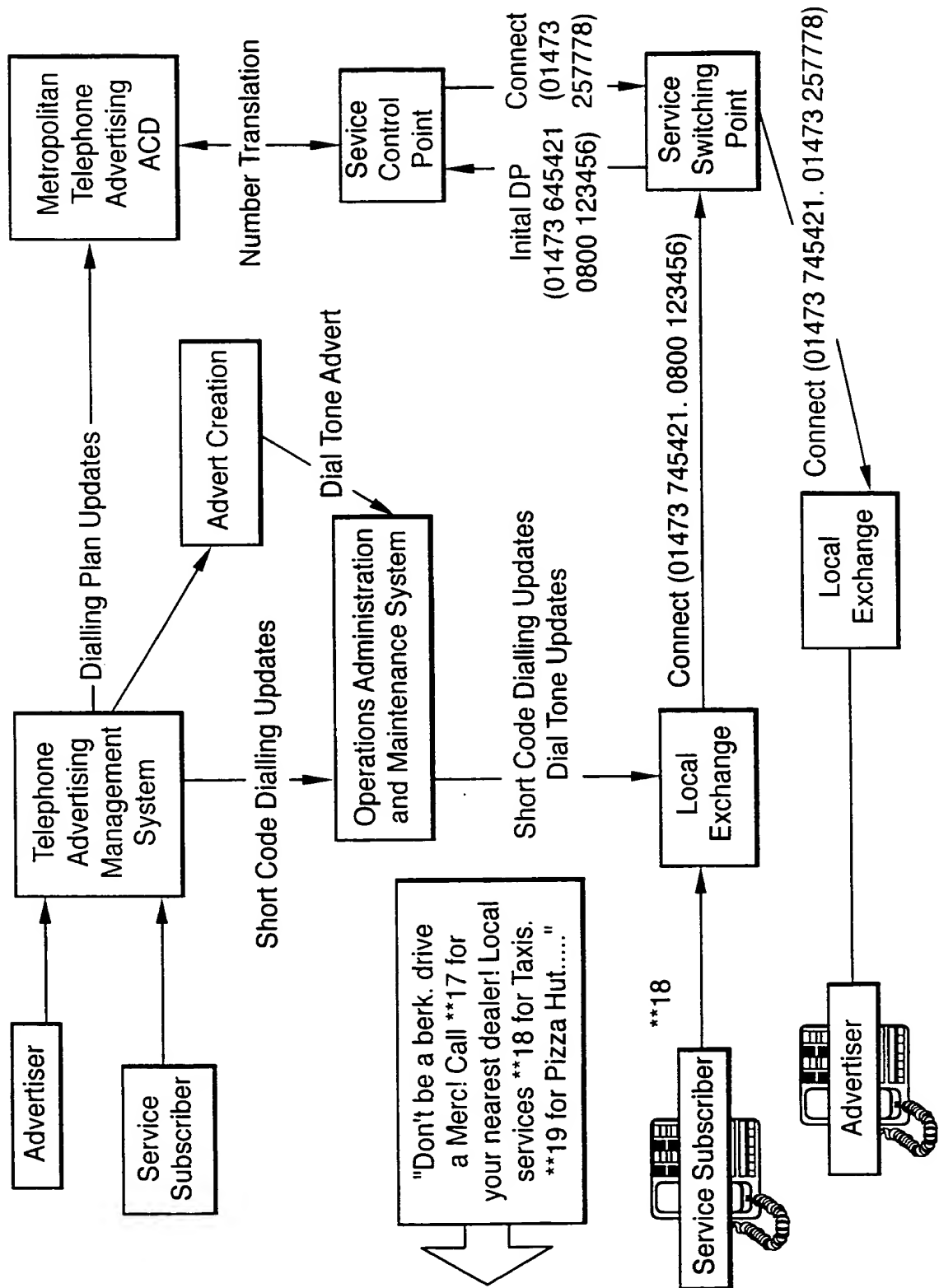


Fig.3.



3/4

Fig.2.

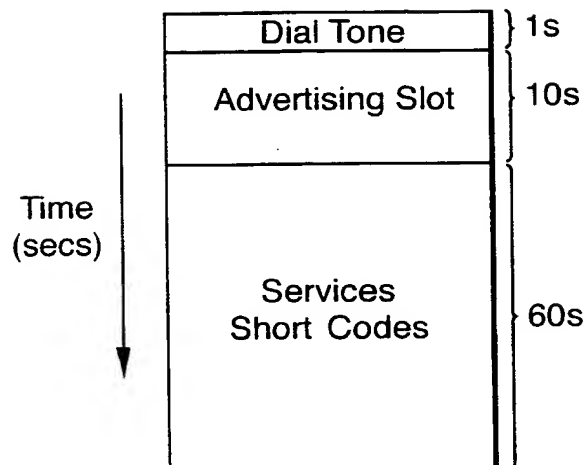


Fig.4.

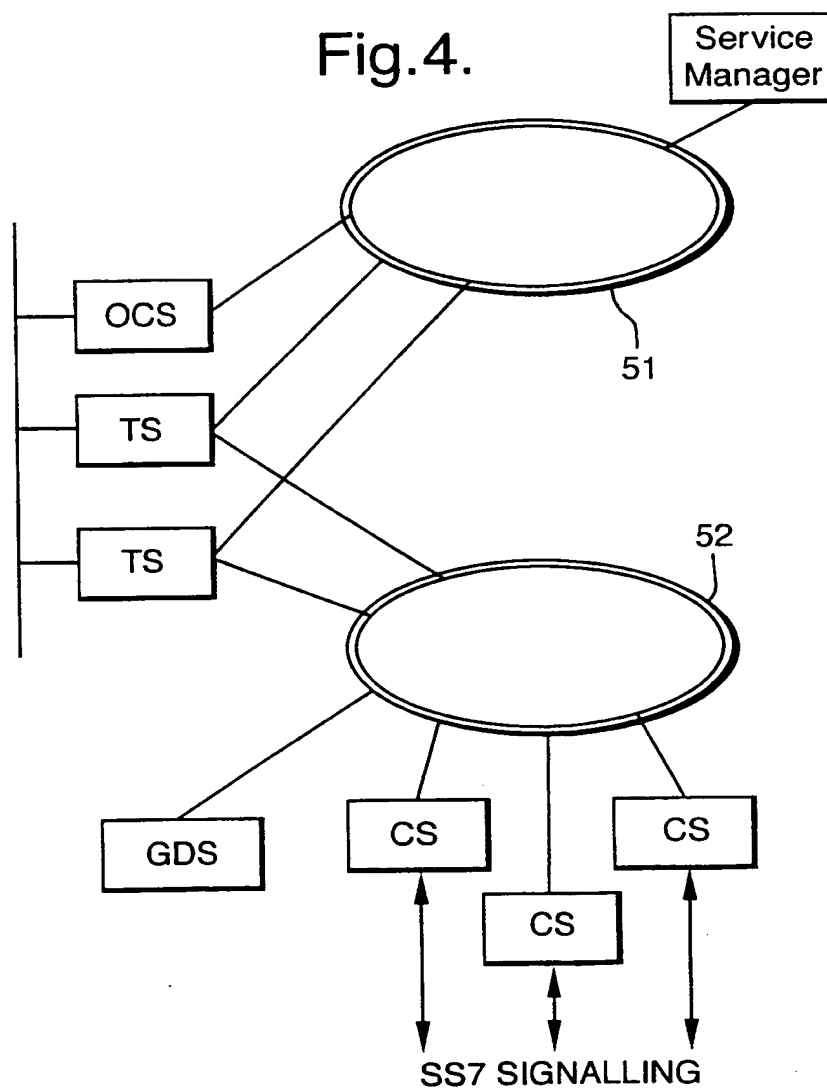
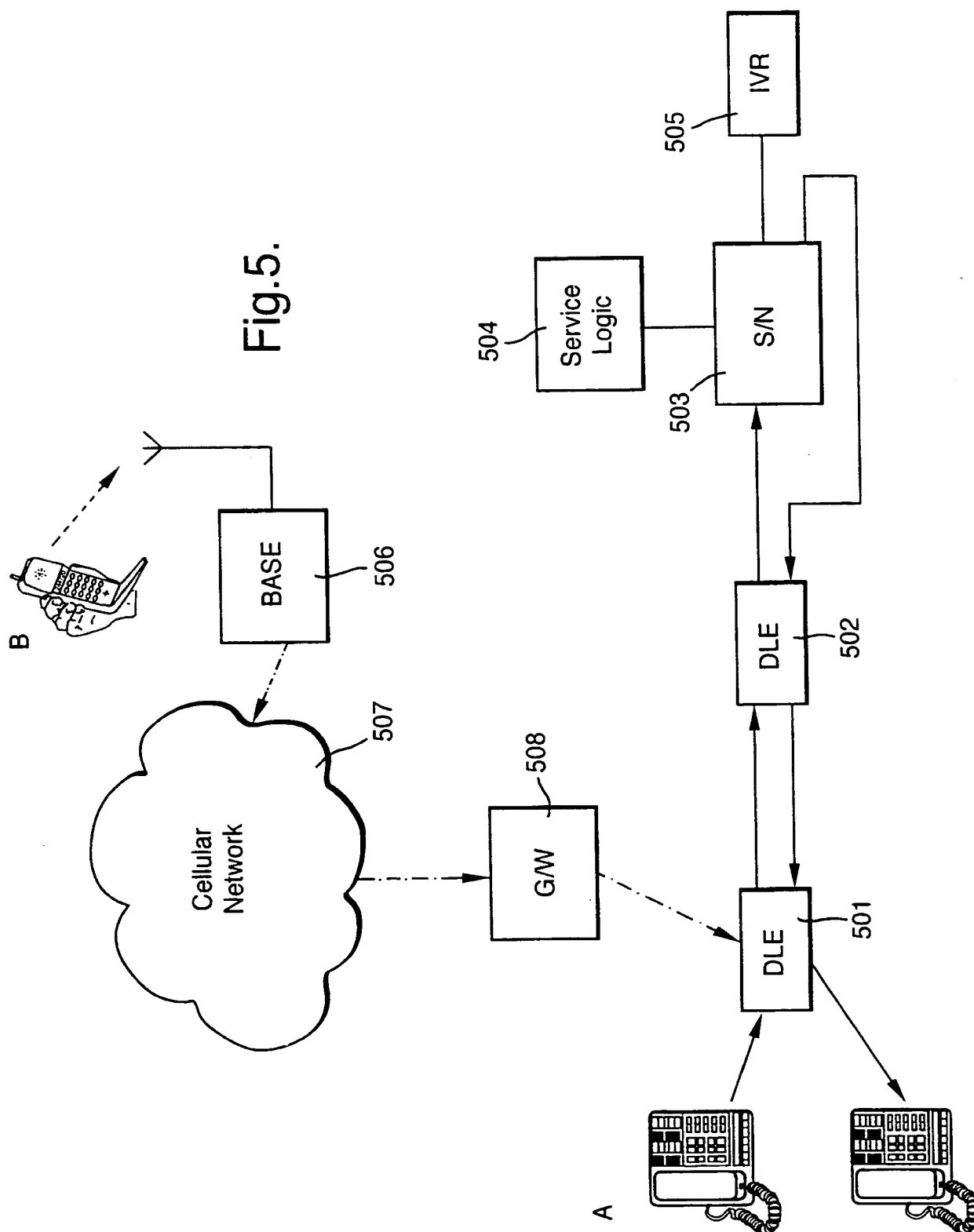


Fig.5.



INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/00822

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 H04M3/50 H04M3/42 H04M3/44

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 H04M H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 448 625 A (LEDERMAN MATTHEW) 5 September 1995 see column 2, line 28 - column 4, line 18 see column 5, line 46 - column 6, line 19 ---	1-15
A	US 4 850 007 A (MARINO PATRICK J ET AL) 18 July 1989 see the whole document ---	1-15
A	US 5 272 748 A (DAVIS GEORGE) 21 December 1993 see abstract see column 1, line 49 - column 3, line 20 ---	1-15
A	DE 41 41 027 A (SCHMIDT CHRISTIAN ; SCHMIDT SIEGFRIED DIPL ING FH (DE)) 17 June 1993 see the whole document -----	1-15



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "Z" document member of the same patent family

Date of the actual completion of the international search

8 June 1999

Date of mailing of the international search report

16/06/1999

Name and mailing address of the ISA

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Megalou, M

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 99/00822

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 5448625	A	05-09-1995	CA	2121102 A	14-10-1994
US 4850007	A	18-07-1989	AU	607233 B	28-02-1991
			AU	1838588 A	05-01-1989
			CA	1286759 A	23-07-1991
			GB	2206265 A, B	29-12-1988
			JP	1017553 A	20-01-1989
			JP	1764247 C	28-05-1993
			JP	4058221 B	16-09-1992
US 5272748	A	21-12-1993	NONE		
DE 4141027	A	17-06-1993	NONE		

PATENT COOPERATION TREATY

EXR

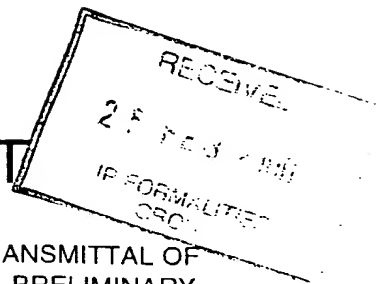
From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

WELLS, David
BT GROUP LEGAL SERVICES
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GRANDE BRETAGNE

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Rule 71.1)



Date of mailing
(day/month/year) 22.02.2000

Applicant's or agent's file reference
A25584/WO

IMPORTANT NOTIFICATION

International application No.
PCT/GB99/00822

International filing date (day/month/year)
17/03/1999

Priority date (day/month/year)
27/03/1998

Applicant
BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

EXR
22

(42759)

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Authorized officer

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference A25584/WO		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/GB99/00822	International filing date (day/month/year) 17/03/1999	Priority date (day/month/year) 27/03/1998
International Patent Classification (IPC) or national classification and IPC H04M3/50		
Applicant BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 4 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input checked="" type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application 		
Date of submission of the demand 06/09/1999		Date of completion of this report 22.02.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized officer Radoglou, A Telephone No. +49 89 2399 8984



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB99/00822

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-7 as originally filed

Claims, No.:

1-15 as originally filed

Drawings, sheets:

1/4-4/4 as received on 03/05/1999

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB99/00822

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1-15
	No: Claims
Inventive step (IS)	Yes: Claims 1-15
	No: Claims
Industrial applicability (IA)	Yes: Claims 1-15
	No: Claims

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB99/00822

To section V:

The invention according to claim 1 relates to a method of operating a telecommunications network wherein the network can be pre-programmed, from a second party repote from a subscriber terminal, to respond to short dialling codes from the subscriber terminal. The subscriber is communicated data about the allocation of short dialling codes and a call is subsequently inititated from the subscriber terminal using one of the short dialling codes.

None of the available prior art discloses or renders obvious the subject-matter claimed. The document US-A-5 272 748, cited in the search report, mentions the use of shot dialling code lists but not the possibility of pre-programming the system with short dialling codes from a second party. Hence the method according to claim 1 meets the requirements of Article 33(2)-(4) PCT.

Dependent claims 2 to 13 relating to preferred embodiments of the invention and claims 14 and 15 which correspond to claims 1 and 2 in terms of system features likewise meet the requirements of Article 33(2)-(4) PCT.

To section VII:

Reference signs in parentheses should have been inserted in the claims to increase their intelligibility, Rule 6.2(b) PCT.

To meet the requirements of Rule 5.1(a)(ii) PCT, the document mentioned above should have been identified in the description and the relevant background art disclosed therein should have been briefly discussed.

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
 United States Patent and Trademark
 Office
 Box PCT
 Washington, D.C. 20231
 ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 12 October 1999 (12.10.99)	
International application No. PCT/GB99/00822	Applicant's or agent's file reference A25584/WO
International filing date (day/month/year) 17 March 1999 (17.03.99)	Priority date (day/month/year) 27 March 1998 (27.03.98)
Applicant LAUNDERS, Darren, Michael et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:06 September 1999 (06.09.99)☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Lazar Joseph Panakal Telephone No.: (41-22) 338.83.38
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